In the Claims

Claim 1. (Original) A billing system for determining transportation charges-for packages movable along a conveyor, said billing system comprising:

a reader to read a package identifier associated with said package, said reader generating a package identification signal and transmitting the signal to a microprocessor;

a package sizer having a plurality of spaced non-contact optical sensors being positioned on at last an y and a z, axis for measuring a height and a width of a package, and a means for measuring a length of said package, each optical sensor being located at a known position and oriented relative to said conveyor so that packages passing past said sizer are detected by said optical sensors, said sizer determining a size of said package; and

a microprocessor to receive and correlate said package identification signal and said package size for billing purposes, said microprocessor including pre-input data on billing charges, whereby said measured package size can be compared to said pre-input data to determine a transportation charge for said package.

Claim 2. (Original) A billing system as claimed in claim 1 wherein said means for measuring a length of said package further includes a plurality of optical sensors positioned along an x axis for measuring a length of said package.

Claim 3. (Currently amended) A billing system as claimed in claim 1 [or 2] further including a weigh scale associated with said sizer, said weigh scale sensing a weight of each of said packages on said sizer and producing a weight signal, wherein said microprocessor receives said weight signal and correlates the same with said package identification signal and said package size signal for billing purposes.

Claim 4. (Original) A billing system as claimed in claim 2 further including a stop to position said packages relative to said optical sensors for accurate size measurement.

Claim 5. (Original) A billing system as claimed in claim 4 wherein said stop is moveable between a package volume sensing position and a package passing position..

Claim 6. (Original) A billing system as claimed in claim 2 wherein said microprocessor includes a display to display one or more package parameters.

Claim 7. (Original) A billing system as claimed in claim 6 wherein said microprocessor includes a display to display at least a measured package volume and a measured package weight.

Claim 8. (Original) A billing system as claimed in claim 1 wherein said optical sensors further comprise a plurality of light detecting phototransistors, which detect whether an object is passing thereover.

Claim 9. (Original) A billing system as claimed in claim 8 wherein said light, detecting diodes are located behind a transparent shield whereby the packages being sized are remotely measured.

Claim 10. (Currently amended) A billing system as claimed in claim 1 [or 2] wherein a dimension of a package is measured by determining the distance between the two most spaced apart diodes which detect the presence of said package.

Claim 11. (Original) A billing system as claimed in claim 1 wherein said means for measuring a length of said package further includes a means to measure a speed of said package and a length of time said package takes to pass over said optical sensors, and said microprocessor includes a means for calculating the length of said package based on said speed and time measurements.

Claim 12. (Original) A billing system as claimed in claim 1 wherein said y and z axis sensors define a measurement plane through which said package being measured passes.

Claim 13. (Original) A billing system as claimed in claim 12 wherein said sizer further includes optical signal sources directed at said optical sensors along the y axis.

Claim 14. (Original) A billing system as claimed in claim 13 further including optical input guides to shield said optical sensors from stray light sources.

Claim 15. (Original) A billing system as claimed in claim 13 further including optical signal guides to direct an optical output from said optical signal sources towards said optical sensors.

Claim 16. (Original) A billing system as claimed in claim 11 further including a motor to drive said conveyor to pass said package past said sensors.

Claim 17. (Original) A billing system as claimed in claim 16 further including a speed sensor to measure the actual speed of said package as it passes said sensors.

Claim 18. (Original) A billing system as claimed in claim 1 wherein said system measures the time a package takes to pass past said sensors.

Claim 19. (Original) A billing system as claimed in claim 1 further including a light source located above said z axis sensors.

Claim 20. (Original)A method of determining transportation charges for packages by using a billing system having non-contact optical sensors, said method comprising the steps of:

identifying a package by means of a reader;

passing the package past sensors located in a y and z axis and measuring a length of said package on an x axis;

determining a volume of said package from said sensor readings and said length of said package;

measuring a weight of the package;

correlating the package identifier with said measured weight and volume of said package in a database;

displaying the measured weight and volume; and

determining a charge for said package based upon said measured weight and volume upon acceptance of the displayed package parameters.

Claim 21. (Original) A method of determining transportation charges for a package as claimed in claim 20 wherein said method further includes an initialization step, in which all of the non-contact optical sensors are temporarily energized to permit visual verification of system operation.

Claim 22. (Original) A method of determining transportation charges for a package as claimed in claim 21 further including the step of checking each optical sensor upon start up and detecting any faults therein.

Claim 23. (Original) A method of determining transportation charges for a package as claimed in claim 22 further including the step of displaying an error message upon a fault being detected in an optical sensor.

Claim 24. (Original) A method of determining transportation charges for a package as claimed in claim 23 further including the step of identifying a location of said detected fault and displaying the same.

Claim 25 (New) A billing system as claimed in claim 2 further including a weigh scale associated with said sizer, said weigh scale sensing a weight of each of said packages on said sizer and producing a weight signal, wherein said microprocessor receives said weight signal and correlates the same with said package identification signal and said package size signal for billing purposes.

Claim 26. (New) A billing system as claimed in claim 2 wherein a dimension of a package is measured by determining the distance between the two most spaced apart diodes which detect the presence of said package.